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# मानक

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IS 12415 (1988): Polyamide Duck for Industrial Use [TXD 33: Industrial Fabrics]



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*Indian Standard*

**SPECIFICATION FOR  
POLYAMIDE DUCK FOR INDUSTRIAL USE**

UDC 677·494·675·074·162·3

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

**AMENDMENT NO. 1 AUGUST 1992  
TO  
IS 12415 : 1988 SPECIFICATION FOR POLYAMIDE  
DUCK FOR INDUSTRIAL USE**

**( Page 1, clause 1 ) — Insert the following new clause after 1.2:**

**'1.3 The polyamide duck covered under this specification is not suitable for belting.'**

**( TXD 24 )**

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**Reprography Unit, BIS, New Delhi, India**

# *Indian Standard*

## SPECIFICATION FOR POLYAMIDE DUCK FOR INDUSTRIAL USE

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Bureau of Indian Standards on 30 May 1988, after the draft finalized by the Industrial/Engineering Fabrics and Geotextiles Sectional Committee had been approved by the Textiles Division Council.

**0.2** Polyamide ducks are used as base fabric for many products because of high strength, durability and good dipping property for improving adhesion to rubber.

**0.3** The elongation at break of polyamide duck is an important requirement. However, it has not been included due to non-availability of

reliable data. It is intended to incorporate this requirement in due course. Till such time this may be according to the agreement between the buyer and the seller.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

\*Rules for rounding off numerical values ( *revised* ).

### 1. SCOPE

**1.1** This standard prescribes the constructional particulars and other requirements of nine varieties of polyamide ducks for industrial use. The polyamide ducks may be undyed or dyed.

**1.2** This standard does not specify the general appearance, feel, finish, etc., of the cloth.

### 2. TERMINOLOGY

**2.0** For the purpose of this standard, the following definition shall apply.

**2.1 Duck** — A firmly woven strong and heavy cloth in plain weave or its derivatives, that is, oxford and matt weave. It is used as sails, linings and base fabric for tarpaulins and other treated fabrics.

### 3. MANUFACTURE

**3.1 Yarn** — Polyamide-6 type yarn shall be used for the manufacture of polyamide duck. The yarn shall be reasonably free from spinning, doubling and other prominently noticeable defects.

**3.2 Cloth** — The cloth may be dyed or undyed as required by the buyer. In case of dyed cloth, the same should be free from stains, streaks, patches and specks.

### 4. REQUIREMENTS

**4.1 Constructional Particulars** — The constructional particulars of undyed or dyed polyamide duck shall conform to Table 1 except the denier

( tex ) of yarns which is given only for guidance of the manufacturers.

**4.2** The polyamide duck shall also conform to the requirements laid down in Table 2.

### 4.3 Sealed Sample

**4.3.1** If, in order to illustrate or specify the general appearance, feel and such other characteristics of the polyamide duck, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects.

**4.3.2** The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

### 5. MARKING

**5.1** The polyamide duck shall be marked with the following:

- a) Manufacturer's name, initials or trade-mark;
- b) Name of the material;
- c) Variety number;
- d) Identification mark at both ends;
- e) Month and year of manufacture;
- f) Length and width of the piece; and
- g) Any other particulars required by the buyer or by the law or regulation in force.

**5.1.1** The polyamide duck may also be marked with the Standard Mark.

**TABLE 1 CONSTRUCTIONAL PARTICULARS OF POLYAMIDE DUCK FOR INDUSTRIAL USE**  
( Clause 4.1 )

VAR No.	LINEAR DENSITY ( APPROXIMATELY ) AND PLY OF YARN		ENDS PER dm	PICKS PER dm	MASS  g/m <sup>2</sup>	BREAKING STRENGTH ON 2.5 × 20 cm STRIPS, Min		ELONGATION PERCENT AT PREDETERMINED LOAD ( see NOTE 2 )		LENGTH ( see NOTE 3 ) m	WIDTH cm	WEAVE
	Warp	Weft				Warp Way	Weft Way	Warp Way	Weft Way			
(1)	(2) Denier (Tex)	(3) Denier (Tex)	(4)	(5)	(6) g/m <sup>2</sup>	(7) N	(8) N	(9)	(10)	(11)	(12)	(13)
1	840 (94)	840 (94)	79	87	170	1 025	1 125	3.5	3.0	As agreed to bet- ween the buyer and the seller/ as dec- lared	As agreed to bet- ween the buyer and the seller/ as dec- lared	Plain
2	1 260 (140)	1 260 (140)	225	95	490	1 825	720					
3	1 680 (187)	1 680 (187)	225	110	695	2 450	1 225					
4	1 680 (187)	1 680 (187)	275	110	805	3 050	1 225					
5	1 680 (187)	1 680 (187)	340	110	940	3 675	1 225					
6	2 520 (280)	2 520 (280)	270	95	1 125	4 450	1 575					
7	2 520 (280)	2 520 (280)	305	115	1 290	5 025	1 900					
8	2 520 (280)	2 520 (280)	375	115	1 370	5 880	1 960					
9	2 520 (280)	2 520 (280)	445	130	1 770	6 950	2 200					
Tolerance— percent		—	± 2.5	± 5	± 5	—	—	± 1	± 1	—	± 1	—
Method of test	—	IS : 1963-1981*	IS : 1964- 1970†	IS : 1969-1985‡ ( see also Appendix A )	IS : 1969-1985‡	IS : 1954-1969§	Visual					

NOTE 1 — 1 N (Newton) is approximately equal to 0.102 kgf.

NOTE 2 — Elongation percent is to be tested at 10 percent of the corresponding breaking load.

NOTE 3 — No negative tolerance shall be permitted on the length of piece.

\*Method for determination of threads per unit length in woven fabrics (second revision).

†Method for determination of weight per square metre and weight per linear metre of fabrics (first revision).

‡Method for determination of breaking load and elongation of woven textile fabrics (second revision).

§Methods for determination of length and width of fabrics (first revision).

**TABLE 2 REQUIREMENTS FOR POLYAMIDE DUCK  
FOR INDUSTRIAL USE**  
( Clause 4.2 )

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST
(1)	(2)	(3)	(4)
i)	Shrinkage or elonga- tion, percent, <i>Max</i>	5	IS : 2977 - 1964*
ii)	Colour fastness ( for dyed duck ) to:		
a)	Light	4 or better	IS : 686 - 1985† or IS : 2454 - 1985‡
b)	Washing : Test 3	4 or better	IS : 764 - 1979§

\*Method for determination of dimensional changes of woven fabrics ( other than wool ) on soaking in water.

†Method for determination of colour fastness of textile materials to day light ( first revision ).

‡Method for determination of colour fastness of textile materials to artificial light (xenon lamp) ( first revision ).

§Method for determination of colour fastness of textile materials to washing : Test 3 ( second revision ).

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

## 6. PACKING

6.1 The polyamide duck shall be packed in roll form in bales or cases in conformity with the procedure laid down either in IS : 2195 - 1964\* or in IS : 2194 - 1963† as required.

\*Code for inland packaging of man-made fibre fabrics and man-made fibre yarn.

†Code for seaworthy packaging of man-made fibre fabrics.

**7. SAMPLING**

**7.1** For ascertaining the conformity in respect of ends, picks, mass, breaking strength, elongation percent, length and width, the number of tests and criteria for conformity, as given in IS : 3919-1966\*, shall be followed.

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\*Methods for sampling cotton fabrics for determination of physical characteristics.

**7.2** For evaluating the conformity of the material in respect of shrinkage or elongation and colour fastness requirements, the scale of sampling and criteria for conformity as given in IS : 5463-1969\* shall apply.

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\*Methods for sampling of cotton fabrics for chemical tests.

**APPENDIX A***( Table 1 )***PREPARATION OF TEST SPECIMENS FOR DETERMINING BREAKING STRENGTH AND ELONGATION****A-1. PRINCIPLE**

**A-1.1** The general practice in breaking strength tests is to ravel the test specimens to a width of 2.5 cm. However, in case of polyamide ducks, where coarse plied yarns are used and the thread (end-picks) density is quite low, the strips are ravelled to a constant number of threads instead of a constant width. For example, if the number of threads per 2.5 cm is 15.5, three specimens having 16 threads and the other three specimens having 15 threads should be tested. Similarly, pro-rata adjustments have to be made in the number of specimens to be chosen based on the average number of threads per 2.5 cm.

**A-2. PREPARATION OF TEST SPECIMENS**

**A-2.1** Cut six warpway and six weftway speci-

mens from different portions of sample under test, at random in such a way that no two test specimens shall contain the same set of threads. In case of warpway testing, the specimen of 75 mm width shall be ravelled to the desired number of ends and in case of weftway testing, the specimen of 50 mm width shall be ravelled to the desired number of picks.

**A-2.2** The recommended rate of traverse for determining breaking strength and elongation is  $460 \pm 15$  mm/min.

**A-2.3** The specimen may be provided with suitable padding in order to avoid slippage during test.



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